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(54) **Backrest with Adjustable Lumbar Support**

(57) The backrest has an elastic plate, 1 in the shape of a Bow which is fitted between two channels 2, 3 the distance between which can be adjusted to bend the plate and together with the plate is height adjustable.

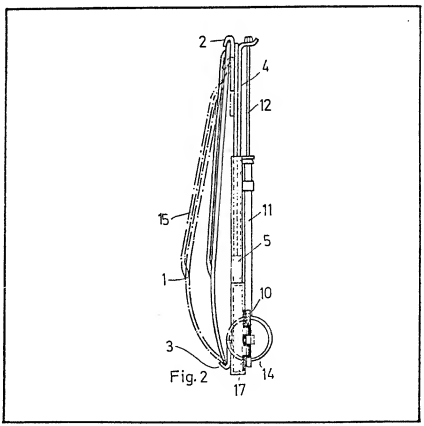

Fig. 2

GB 2 013 487 A

Fig. 1

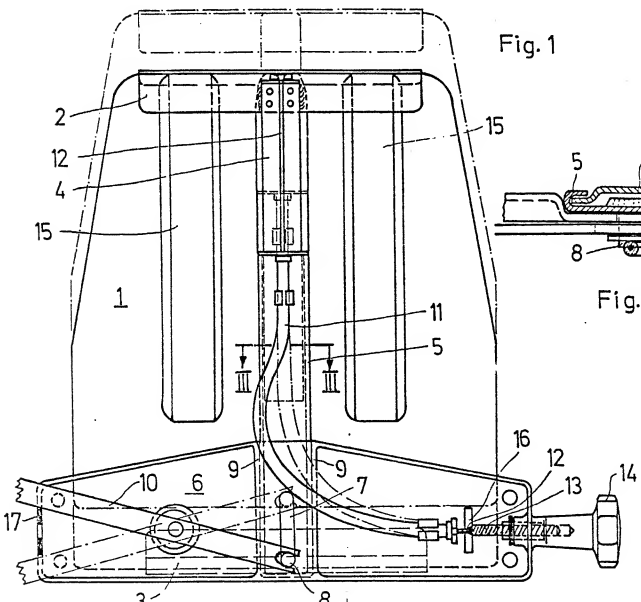

Fig. 3

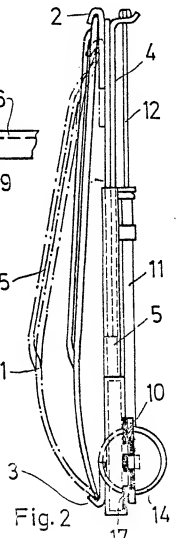

Fig. 2

SPECIFICATION

Backrest with Adjustable Lumbar Support Inclusive of Height Adjustment

The Invention refers to a Backrest with height and Bow adjustment (Lumbar Support) mainly for Vehicle Seats.

Such a Backrest will enable the setting of the bow and the height of the bow in relation to a sitting person.

There are Bow Mechanisms for Backrests known in which steel ropes guided through tubes cutting with different Mitrers will achieve different bows by tensioning the ropes. The height is adjustable via a threaded spindle which will adjust the whole Backrest. The Bow adjustment of such a Backrest is in production and assembly expensive and uneconomical.

It is the object of the invention to create a cost effective and simple to assemble Backrest with height and Bow adjustment. (Lumbar Support).

This has been solved through a elastic Plate in the shape of a Backrest which is fitted between two channels which distance can be adjusted and together with the Plate is height adjustable.

The distance between the two channels is adjusted via the guide rail which with the Bow adjustment Mechanism will stop at any position.

To bow the plate it is fitted between two channels which are fitted to two guide rails in a T shape which are adjustable and can be set at any required position.

A Baseplate fitted to the back of the Backrest in which the guide rail of the lower channel is vertical guided enables the height adjustment Mechanism to set the height of the bow without interfering with the bow of the Plate.

The shape of the bow is controlled by indentations, cutouts or other similar contraptions.

The invention is explained on the Drawing.

Fig. 1 shows the view of a Backrest with height and bow adjustment from the back.

Fig. 2 shows the side view.

Fig. 3 shows the cut 3—3 of fig 2.

The backrest as shown in Fig. 1 has a Plate 1 of rustproof Material of high elasticity, for example Plastic. Plate 1 has a wanted Backrest shape. The upper and lower edge of Plate 1 is located in channels 2 and 3 which clamp the Plate. In the centre of Channel 2 and 3 guide rails 4 and 5 are fitted symbolising a T. That to channel 3 fitted guide rail 5 is a Profile with 2 U shaped edges in which guide rail 4 is fitted.

The channel 3 with the attached guide rail 5 is in vertical direction movable and is guided in Baseplate 6 which is fitted on a not shown Seat. For this purpose a longated hole 7 is fitted in Baseplate 6 in which pin 8 fitted to guide rail 5 is located, and guiding edges allow guide rail 5 to move. Round pin 8 a Fork shaped Lever 10 is located which is fitted to Baseplate 6 and runs parallel to Plate 1 and has a Knob fitted on the other end. By moving lever 10 Backrest Plate 1 together with channel 2 and 3 and guide rail 4 and 5 are moved up and down without altering the bow of the Plate.

The bow adjustment Mechanism is a Bowden cable. The outer casing 11 of the cable is fitted vertical to guide rail 5 and the other end horizontally on Baseplate 6. The cable 12 is fitted on Channel 2 on the upper guide rail 4 and the other end on a threaded Spindle 13 which is located in Knob 14 fitted to Baseplate 6. By turning Knob 14 Spindle 13 moves in or out of the knob and by doing so reduces or increases the distance between Channel 2 and 3 which will increase or decrease the bow of the Plate.

The bow of the Plate is controlled by indentations.

The Drawing in Fig. 2, with drawn lines shows the Backrest in minimal bow condition, the broken line shows maximum bow.

The length of the Bowden cable must be long enough to adjust the Backrest to the highest position without interferring with guide rail 5 and Baseplate 6.

Fig. 1 the broken line shows the highest position, the drawn line the lowest position of the Backrest.

The adjustment of Lever 10 is shown on 17 with serration in Baseplate 6,

Claims

1. Backrest with adjustable Lumbar Support and height adjustment, mainly for Vehicle seats, characterised of a elastic Plate (1) in the shape of a backrest which is fitted between two adjustable channels and together with Plate 1 is height adjustable.

2. Backrest to claim 1 characterised by 2 channels (2,3) fitted to guide rails (4,5) which glide one into the other and are adjustable via the Bow Adjustable knob.

3. Backrest to claim 1 or 2 characterised that the upper and lower edge of Plate (1), are located in channels (2,3) which are fitted in T form to the upper and lower guide rails.

4. Backrest to claim 3 characterised through the fitting of a Baseplate (6) to the Backrest outside, in which the guide rail (5) of the lower channel (3) is vertically guided and is adjustable via the Height adjustment Lever.

5. Backrest to claim 4 characterised through a vertical longated hole (7) in the Baseplate (6) and two guiding edges (9) in which the guide rail (5) to which a pin (8) is fitted is located. An adjusting lever (10) is fitted to the Baseplate and the forklink end is located round pin (8).

6. Backrest to claim 4 characterised that the height adjustment is a threaded spindle.

7. Backrest to at least one of the claims 3 to 6 characterised that the bow adjustment is a Bowden cable which outer case (11) is fitted to the upper guide rail (5) and Baseplate (6). One end of the wire (12) is fitted to guide rail (4) on the upper location (2) and the other end to a threaded spindle (13) which fits into a threaded knob (14) located on the Baseplate.

8. Backrest to claim 7 characterised that the Knob (14) is fitted in a horizontal Axle to Plate (1).

9. Backrest to at least one of the claims 3 to 8 characterised that the guide rail (5) of the lower channel (3) is a Profile with two U shaped edges in which the Profile of guide rail (4) with the upper channel (2) is guided.

10. Backrest to at least one of the preceding claims characterised that the elastic Plate (1) has indentations (15) cutouts or similar contraptions which control the Bow of the elastic Plate (1).

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